CLAIMS

WHAT IS CLAIMED:

1. A method for controlling a film thickness of a plurality of wafers, the wafers being baked in a multi-zone furnace for a first bake time, the method comprising:

measuring the film thickness of at least one wafer baked in each zone of the furnace;

determining a deposition rate for each zone of the furnace, the deposition rate being determined as a function of the film thickness of the wafer and the first bake time;

assigning the deposition rate of one of said zones as a baseline for the other said zones of the furnace;

adjusting the deposition rate of the other said zones of the furnace to be substantially the same as said baseline deposition rate; and

baking a subsequent set of wafers in said furnace with said adjusted deposition rates.

2. The method of claim 1, further comprising:

determining a temperature setting to set the other said zones of the furnace to achieve said baseline deposition rate; and

changing the temperature setting of the other said zones to the temperature setting determined.

3. The method of claim 1, further comprising:

determining a gas flow rate to set the other said zones of the furnace to achieve said baseline deposition rate; and

changing the gas flow rate of the other said zones to the gas flow rate determined.

4. The method of claim 1, wherein measuring the film thickness further comprises:

measuring the film thickness of at least one wafer baked in each zone of the furnace with an ellipsometer.

5. The method of claim 1, further comprising:

determining a second bake time to bake said subsequent set of wafers in the furnace based at least upon said baseline deposition rate.

6. The method of claim 5, wherein determining a second bake time to bake said subsequent set of wafers further comprises:

selecting a desired film thickness for said subsequent set of wafers to be baked in the furnace; and

determining a second bake time to bake the subsequent set of wafers as a function of the desired film thickness and the baseline deposition rate.

7. An apparatus, comprising:

a multi-zone furnace adapted to bake a plurality of wafers for a first bake time, with each zone of the furnace accommodating at least one wafer;

a metrology tool adapted to measure a film thickness of the at least one wafer baked in each zone of the furnace; and

a first controller adapted to determine a deposition rate for each zone of the furnace, the deposition rate being determined as a function of the film thickness of the wafer and the first bake time, to assign the deposition rate of one of said zones as a baseline for the other said zones of the furnace, and to adjust the

deposition rate of the other said zones of the furnace to be substantially the same as said baseline deposition rate; and

wherein the furnace is further adapted to bake the subsequent set of wafers in the furnace with said adjusted deposition rates.

8. The apparatus of claim 7, further comprising:

at least one second controller, the at least one second controller being adapted to adjust the temperature setting of each zone of the furnace; and

wherein the first controller is further adapted to determine a temperature setting to set the other said zones of the furnace to achieve said baseline deposition rate, and change the temperature setting of the other said zones to the temperature setting determined.

9. The apparatus of claim 7, further comprising:

at least one second controller, the at least one second controller being adapted to adjust the gas flow rate of each zone of the furnace; and

wherein the first controller is further adapted to determine a gas flow rate to set the other said zones of the furnace to achieve said baseline deposition rate, and change the gas flow rate of the other said zones to the gas flow rate determined.

10. The apparatus of claim 7, wherein the metrology tool further comprises an ellipsometer.

11. The apparatus of claim 7, wherein the first controller is further adapted to determine a second bake time to bake said subsequent set of wafers in the furnace based at least upon said baseline deposition rate.

12. The apparatus of claim 11, wherein the first controller is further adapted to select a desired film thickness for said subsequent set of wafers to be baked in the furnace, and to determine the second bake time to bake the subsequent set of wafers as a function of the desired film thickness and the baseline deposition rate.

13. An apparatus for controlling a film thickness of a plurality of wafers, the wafers being baked in a multi-zone furnace for a first bake time, comprising:

means for measuring the film thickness of at least one wafer baked in each zone of the furnace;

means for determining a deposition rate for each zone of the furnace, the deposition rate being determined as a function of the film thickness of the wafer and the first bake time;

means for assigning the deposition rate of one of said zones as a baseline for the other said zones of the furnace;

means for adjusting the deposition rate of the other said zones of the furnace to be substantially the same as said baseline deposition rate; and

means for baking a subsequent set of wafers in said furnace with said adjusted deposition rates.

14. The apparatus of claim 13, further comprising:

means for determining a temperature setting to set the other said zones of the furnace to achieve said baseline deposition rate; and

means for changing the temperature setting of the other said zones to the temperature determined.

15. The apparatus of claim 13, further comprising:

means for determining a gas flow rate to set the other said zones of the furnace to achieve said baseline deposition rate; and

means for changing the gas flow rate of the other said zones to the gas flow rate determined.

16. The apparatus of claim 13, wherein the means for measuring the film thickness further comprises:

means for measuring the film thickness of at least one wafer baked in each zone of the furnace with an ellipsometer.

17. The apparatus of claim 13, further comprising:

means for determining a second bake time to bake said subsequent set of wafers in the furnace based at least upon said baseline deposition rate.

18. The apparatus of claim 17, wherein the means for determining a second bake time to bake said subsequent set of wafers further comprises:

means for selecting a desired film thickness for said subsequent set of wafers to be baked in the furnace; and

means for determining a second bake time to bake the subsequent set of wafers as a function of the desired film thickness and the baseline deposition rate.

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